FORCE AND TORQUE CONVERTER

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Abstract

A force and torque converter is provided which provides an electronic representation of a planarly applied force and a torque applied about an axis that is orthogonal to the plane. The converter includes a base, an actuating member which is relatively displaced in response to the applied torque and force, resilient mechanisms to provide a restoring force and torque to the actuating member, and sensing mechanisms to sense the applied torque and force and generate an electronic representation thereof. The electronic representation is characterized by a sensitivity curve in which relatively small applied forces and torques result in a relatively low scale factor and where for a range of small applied forces and torques the relation of scale factor with respect to applied torque and force has a relatively low derivative. Further, for a range of larger applied forces and torques, the sensitivity curve has a relatively large scale factor and a relatively large derivative. In one embodiment, the sensitivity curve is implemented by a processing mechanism which includes a microprocessor and firmware.